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(54) Title: CORROSION RESISTANT COATINGS CONTAINING RARE EARTH COMPOUNDS

(57) Abstract: A coating composition comprising an effective corrosion-inhibiting amount of a rare earth compound, a neutral to slightly acidic generating extender or an acidic generating extender, or combinations thereof is provided. In one embodiment, the corrosion-inhibiting components are combined with other components such as extenders, amino acids and amino acid derivatives, gelatin and gelatin derivatives, organic-based exchange resins, and combinations thereof, to enhance the corrosion resistance of the resultant coating film. The coating compositions have good adhesion to substrates such as metals, including aluminum and aluminum alloys.

INTERNATIONAL SEARCH REPORT

International Application No

/US2004/001143

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C09D5/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C09D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>EP 0 902 103 A (NIPPON STEEL CORP) 17 March 1999 (1999-03-17)</p> <p>paragraph [0006] paragraph [0008] paragraph [0014] paragraph [0017] paragraph [0023] - paragraph [0025] paragraph [0028] - paragraph [0030] paragraph [0052]</p> <p>----- -/--</p>	<p>1,2,7, 9-14,21, 25-28, 30, 41-43, 50,54, 60-62, 64,80, 82,84,89</p>

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 02/31064 A (CHEMTEALL GMBH ; DOMES HERIBERT (DE); JUNG CHRISTIAN (DE); MAURUS NORB) 18 April 2002 (2002-04-18)</p> <p>page 41, line 1 - line 17 page 52, line 9 - line 13 table 2 claims 1,3,4,8,13,20,22,23,25,32,34,35,41,44,52,6 0</p>	<p>1,7, 10-13, 21,27, 28,30, 41-45, 50,54, 58-62, 76,87,89</p>
X	<p>EP 1 125 989 A (NIPPON PAINT CO LTD) 22 August 2001 (2001-08-22)</p> <p>-----</p> <p>paragraph [0006] paragraph [0008] paragraph [0010] paragraph [0013] paragraph [0055] - paragraph [0057] paragraph [0060] paragraph [0063] paragraph [0065] - paragraph [0066] -----</p>	<p>1,2,5,7, 9-15,21, 25-28, 30, 41-45, 50,54, 58-62, 64,76, 80-82, 84,85, 87,89</p>

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/001143

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1,2,5,7,9-15,21,25-28,30,41-45,50,54,58-62,64,76,80-82,84,85...

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims:

1,2,5,7,9-15,21,25-28,30,41-45,50,54,
58-62,64,76,80-82,84,85,87,89

coating composition comprising a rare earth compound an
extender and a binder, a method of preparing and a method
coating a substrate with said composition

2. claims: 3,16-20,22-24

coating composition comprising a praseodymium (III) and/or
(IV) compound

3. claim: 4

coating composition comprising a rare earth mixed oxid

4. claims: 6,8,29,31-40,90

coating composition comprising an extender selectes from
calcium, strontium, barium, sulphate or phosphate containing
salt

5. claims: 46-49

coating composition comprising a rare earth compound and a
inorganic or composite binder

6. claim: 51

coating composition comprising a rare earth compound,
cyclodextrin, triflic acid and an ion exchange resin

7. claims: 52,53

coating composition comprising a rare earth compound and a
gelatin or its derivative

8. claims: 55-57

coating composition comprising a rare earth compound and a
specific amino acid or its derivative

9. claim: 63

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Composite substrate coated with a coating composition
comprising a rare earth compound

10. claims: 65,75,77-79,83,88

pretreated substrate coated with coating composition
comprising a rare earth compound

11. claim: 86

coating composition comprising a rare earth carbonate or
triflate

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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